

We claim:

1. A method of identifying an agent useful in treating Crohn's disease, comprising:

- 5 (a) culturing *P. fluorescens* under conditions that support growth;
- (b) contacting said *P. fluorescens* with an agent; and
- 10 (c) assaying for reduced growth or viability of said *P. fluorescens* as compared to the growth or viability in the absence of said agent,
- wherein said reduced growth or viability of said *P. fluorescens* indicates that said agent is an anti-*P. fluorescens* agent useful in treating Crohn's disease.

15 2. The method of claim 1, wherein said agent is an antibiotic.

3. A method of preventing or treating Crohn's disease in an individual, comprising administering to said individual an effective amount of an anti-*P. fluorescens*

20 agent identified according to the method of claim 1.

4. The method of claim 3, wherein said anti-*P. fluorescens* agent comprises one or more antibiotics.

5. A method of preventing or treating Crohn's disease in an individual, comprising administering to said

25 individual an effective amount of an anti-*Pseudomonas* agent.

6. The method of claim 5, wherein said anti-*Pseudomonas* agent is an anti-*P. fluorescens* agent.

7. The method of claim 6, wherein administration of said anti-*Pseudomonas* agent is optimized for effectivity
5 against *P. fluorescens*.

8. The method of claim 5 or 7, wherein said anti-*Pseudomonas* agent comprises one or more antibiotics.

9. The method of claim 8, wherein said one or more antibiotics are selected from the group consisting of a
10 β -lactamase-resistant penicillin formulation, an aminoglycoside and a fluoroquinolone.

10. The method of claim 9, comprising administering two or more of said antibiotics.

15 11. A method of preventing or treating Crohn's disease in an individual, comprising administering to said individual an effective dose of an anti-*Pseudomonas* vaccine.

12. The method of claim 11, wherein said anti-*Pseudomonas* vaccine is an anti-*P. fluorescens* vaccine.

20 13. The method of claim 11, wherein said anti-*Pseudomonas* vaccine comprises killed whole *Pseudomonas*.

14. The method of claim 13, wherein said *Pseudomonas* vaccine comprises killed whole *P. fluorescens*.

FOOTNOTES

15. A method of preventing or treating Crohn's disease in an individual, comprising administering to said individual an effective dose of a purified *Pseudomonas* antigen, or a tolerogenic fragment thereof.

5 16. The method of claim 15, wherein said antigen is a *P. fluorescens* antigen.

17. The method of claim 16, wherein said antigen is pbrA, or a tolerogenic fragment thereof.

10 18. The method of claim 17, wherein pbrA has an amino acid sequence selected from the group consisting of SEQ ID NO: 2 or a tolerogenic fragment thereof and SEQ ID NO: 3 or a tolerogenic fragment thereof.

15 19. The method of claim 16, wherein said antigen is PFTR, or a tolerogenic fragment thereof, provided that the antigen is not I-2 or a fragment thereof.

20 20. The method of claim 19, wherein PFTR has the amino acid sequence SEQ ID NO: 5, or a tolerogenic fragment thereof.

20 21. The method of claim 15, wherein said *Pseudomonas* antigen is selected from the group consisting of an outer membrane protein, toxin, lipopolysaccharide (LPS), exotoxin A, TonB and a immunogenic fragment thereof.

22. A method of preventing or treating Crohn's disease in an individual, comprising administering to said individual an agent that reduces the expression or activity of pbrA, thereby reducing the growth or viability of *P.*

5 *fluorescens* in said individual.

23. The method of claim 22, wherein said agent reduces the expression of pbrA.

24. The method of claim 23, wherein said agent is a pbrA antisense nucleic acid molecule.

10 25. The method of claim 23, wherein said agent is a sequence-specific ribonuclease.

26. A method of preventing or treating Crohn's disease in an individual, comprising administering to said individual an agent that reduces the expression or activity
15 or PFTR, thereby reducing the growth or viability of *P. fluorescens* in said individual.

27. The method of claim 26, wherein said agent reduces the expression of PFTR.

28. The method of claim 27, wherein said agent is
20 a PFTR antisense nucleic acid molecule.

29. The method of claim 28, wherein said agent is a sequence-specific ribonuclease.

30. The method of claim 26, wherein said agent is an inhibitor of PFTR enzymatic function.

FOI b7E b7C b7D

31. A method of diagnosing Crohn's disease in a individual, comprising:

- (a) obtaining a sample from said individual;
- (b) contacting said sample with pbrA, or an
5 immunoreactive fragment thereof, under conditions
suitable to form a complex of pbrA, or said
immunoreactive fragment thereof, and antibody to
pbrA; and
- (c) detecting the presence or absence of said
10 complex,

wherein the presence of said complex indicates that said individual has Crohn's disease.

32. The method of claim 31, wherein the presence
or absence of said complex is detected with a detectable
15 secondary antibody.

33. The method of claim 31, wherein said pbrA has
an amino acid sequence selected from the group consisting of
SEQ ID NO: 2 or an immunoreactive fragment thereof and SEQ
ID NO: 3 or an immunoreactive fragment thereof.

TOP SECRET SH92660

34. A method of diagnosing Crohn's disease in a individual, comprising:

- (a) obtaining a sample from said individual;
- (b) contacting said sample with PFTR, or an immunoreactive fragment thereof, under conditions suitable to form a complex of PFTR, or said immunoreactive fragment thereof, and antibody to PFTR; and
- (c) detecting the presence or absence of said complex,

provided that said immunoreactive fragment is not I-2 or a fragment thereof, and

wherein the presence of said complex indicates that said individual has Crohn's disease.

35. The method of claim 34, wherein the presence or absence of said complex is detected with a detectable secondary antibody.

36. The method of claim 34, wherein said PFTR has the amino acid sequence SEQ ID NO: 5, or an immunoreactive fragment thereof.